

### **REMARKS**

Claims 16-32 are pending and under examination. Applicants have amended claims 16-20, 24, 25, 29, and 30. Support for the amendments may be found in the specification at, for example, page 12, line 24 to page 13, line 11. Applicants respectfully traverse the rejections made in the Final Office Action, wherein the Examiner:

- (1) rejected claims 16-20, 23, 24, and 31 under 35 U.S.C. § 112, second paragraph, as being indefinite;
- (2) rejected claims 16-20, 23, 24, and 31 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2003/0058508 (“*Webb*”) in view of U.S. Patent App. Pub. No. 2005/0013543 (“*Ionov*”); and
- (3) allowed claims 25-30 and 32.

#### **Rejection of Claims 16-20, 23, 24, and 31 under 35 U.S.C. § 112, 2<sup>nd</sup> Paragraph:**

Applicants have amended claims 16 and 24 to remove the recitation “approximately.” Accordingly, Applicants respectfully request withdrawal of the rejection of claims 16 and 24, as well as the rejection of claims 17-20, 23, and 31 dependent therefrom.

#### **Rejection of Claims 16-20, 23, 24, and 31 under 35 U.S.C. § 103(a):**

Applicants request reconsideration and withdrawal of the rejection of claims 16-20, 23, 24, and 31 under 35 U.S.C. § 103(a) as being unpatentable over *Webb* in view of *Ionov*.

Specifically, *Webb* and *Ionov*, taken either alone or in combination, fail to teach or suggest “applying to each of said optical pulses a respective phase-shift, each respective phase shift having a substantially equal magnitude, each respective phase shift having a sign determined as a function of the respective optical phase value,” as recited in independent claim 16 as amended (emphases added, claim 24 containing similar recitations).

In contrast, and as discussed in the Amendment filed on April 8, 2010, *Webb* recites at paragraph [0019] a “linear dispersion of positive or negative sign,” which does not constitute the claimed “phase shift having a substantially equal magnitude” applied to a pulse. In addition, the dispersion in *Webb* is produced by a passive dispersive element 16 such as a fibre (*see, e.g., Webb*, paragraphs [0019]-[0020]) that does not apply a phase shift (or any transformation) with a sign “determined as a function of the respective optical phase value,” as recited in claim 16 (and similarly claim 24). Indeed, the Final Office Action admitted that “*Webb et al* does not specifically disclose applying an approximately constant phase-shift.” Final Office Action, p. 3.

*Ionov* does not cure the deficiencies of *Webb*. *Ionov* is directed to pulse-position modulation (PPM) (*see Ionov*, paras. [0004] and [0006]), which is a fundamentally different technique from both the conversion of NRZ signals to RZ signals described in *Webb* and the phase-shift keying (PSK) claimed in the present application. In particular, PPM uses isolated discrete pulses with a separation therebetween (*see, e.g., Ionov*, Fig. 1). Therefore, the PPM of *Ionov* would not be operable in a NRZ modulation format, and the teachings of *Ionov* regarding the use of a phase shift for improved performance of a PPM modulation (*see, e.g., Ionov*, paras. [0024]-[0025]) cannot be combined with *Webb*, which operates on a NRZ-modulated signal.

In addition, *Ionov* and *Webb*, whether alone or in combination, do not disclose a PSK signal as claimed, or any properties thereof or operations performed thereon. The Examiner has provided no indication that the teachings of either *Webb* or *Ionov* could be applied to a PSK modulation, or that a person skilled in the art would be motivated to apply the teachings of either *Webb* or *Ionov* to a PSK modulation with any reasonable expectation of success.

In addition, *Ionov* does not teach the claimed “phase shift having a sign determined as a function of the respective optical phase value” (emphasis added), as the phase shift identified by

the Examiner in paragraph [0024] of *Ionov* is applied by the top-hat generator 10, 20 of *Ionov* to “assure[] a flat top of the top-hat pulse.” It would be understood by a person skilled in the art that the conversion of a short clock pulse 11 or a short signal pulse 21 of *Ionov* to a rectangular or top-hat pulse 13, 23 is independent of any optical phase value associated with the pulse(*see, e.g., Ionov*, Fig. 1).

Therefore, independent claims 16 and 24 are nonobvious and should be allowable over *Webb* and *Ionov*. In addition, dependent claims 17-20, 23, and 31 should also be allowable at least by virtue of their dependence from base claim 16 and because they recite additional features not taught or suggested in *Webb* and *Ionov*. Accordingly, Applicants respectfully request withdrawal of the rejection.

**Allowed Claims 25-30 and 32:**

Applicants acknowledge with appreciation the Examiner’s indication of allowable subject matter in claims 25-30 and 32. Claims 25, 29, and 30 have been amended to be consistent with the terminology in amended claims 16-20 and 24. Applicants believe these amendments do not affect the scope of the claims, and believe that claims 25-30 and 32 remain in condition for allowance.

**Conclusion:**

Applicants request reconsideration of the application and withdrawal of the rejections. Pending claims 16-32 are in condition for allowance, and Applicants request a favorable action.

The Final Office Action contains a number of statements reflecting characterizations of the cited art and related claims. Regardless of whether any such statements are identified herein, Applicants decline to automatically subscribe to any such statements or characterizations in the Final Office Action.

If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: October 6, 2010

By: 

David M. Longo  
Reg. No. 53,235

/direct telephone: (571) 203-2763/